

Q14 comprises the steps of partially cutting the web so as to form first cuts in the web while web is nipped; and cutting the web between the first cuts of the web while the web is nipped.

IN THE DRAWINGS

Please replace Figs. 1, 2 and 6 with attached new Figures 1, 2 and 6.

REMARKS

The drawings, abstract and specification were objected to for informalities. Claims 1, 3 to 9, 15 and 18 were rejected under 35 U.S.C. § 112, second paragraph.

The drawings, abstract and specification have been amended. Claims 1, 3 and 18 have been amended.

Withdrawal of the rejection is respectfully requested based on the following comments.

Interview Summary

The Examiner and Applicant's representative, William Gehris, conducted a telephone interview on June 15, 2001. It was suggested that an amendment to claim 1 to recite that the second cutting and nipping device is located downstream from the first cutting and nipping device might overcome the 35 U.S.C. § 112 rejection to claim 1. Applicant's representative would like to thank the Examiner for his assistance during the interview.

Drawings, Abstract and Specification

The drawings, abstract and specification were objected to. Figs 1, 2 and 6, the abstract and the specification have been amended as suggested by the Examiner. Applicant thanks the

Examiner for the helpful suggestions. Withdrawal of the objection to the drawings, abstract and specification is respectfully requested.

Rejection to Claims 1, 3 to 9, 15 and 18

Claims 1, 3 to 9, 15 and 18 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite.

Claim 1 has been amended as suggested in the interview to recite that the second cutting and nipping device is downstream from the first cutting and nipping device. This structural cooperation, it is respectfully submitted, was present in originally-filed claim 1 since the second cutting and nipping device necessarily cut the web between the first cuts.

Claim 3 has been amended as suggested by the Examiner.

Claim 18 has been amended as suggested by the Examiner and to recite that the cutting edges of the cutting cylinder contact the anvil of the anvil cylinder, thus providing the structural cooperation requested by the Examiner.

Withdrawal of the rejection with respect to claims 1, 3 to 9, 15 and 18 is respectfully requested.



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CONCLUSION

It is respectfully requested that the application is now in condition for allowance. In addition, since withdrawn claims 2, 10 to 14, 16 and 17 depend from generic claim 1, which is respectfully submitted to be allowable, it is respectfully requested that these claims also be allowed.

Respectfully submitted,

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In re Application of: HEARN
Serial No.: 09/533,685

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ADDENDUM SHOWING CHANGES TO SPECIFICATION, CLAIMS AND ABSTRACT

IN THE SPECIFICATION

The paragraph beginning on page 5, line 5 with the following:

Fig. 5 shows the nipping and cutting action of the cutting cylinder 3 and anvil cylinder 2. Nipping [elements] surface 202 of anvil cylinder 2 [extend] extends circumferentially about the anvil cylinder, and may be for example a continuous outer layer of material, such as urethane. Nipping [elements] surface 203 of cutting cylinder 3 [extend] extends circumferentially with respect to blade 4, which has axially spaced blade edges 45 as shown in Fig. 3. Blade 4 thus forms partial first cuts in the web 1, and the web 1 remains nipped by nipping surfaces 202, 203 as web 1 travels past the first cutting and nipping device 101.

The paragraph beginning on page 5, line 21 with the following:

Web 1 then is guided by belts 5, 6 to second cutting and nipping device 102 having a cutting cylinder 10 and an anvil cylinder 20. Cutting cylinder 10 has [a] segmented [blade] blades 19 which cuts web 1 between first cuts 44 to make a full cut 49, as shown in Fig. 4, thereby forming a signature 50. Belts 5, 6 pass between cutting edges 32 (Fig. 3) of the segmented [blade] blades 19 and are passed along with the web between the outer surfaces of the cutting cylinder 10 and anvil cylinder 20. As shown in Fig. 6, belts 6 preferably pass through axially spaced grooves 115 in cutting cylinder 10, so that they are not nipped. As web 1 passes through second cutting and nipping device 102, web 1 is nipped by nipping [elements] surface 114 of cutting cylinder 10 and nipping elements 214 of anvil cylinder 20 (Fig. 7). As shown in Fig. 7, belts 5 can pass through grooves 215 in anvil cylinder 20. Nipping [elements] surface 114 [extend] extends circumferentially with respect to blade edges 32 of [blade] blades 19 (Fig. 3). Nipping [elements] surface 214 preferably [extend] extends circumferentially about cylinder 20 in a continuous manner.

The paragraph beginning on page 6, line 5 with the following:

The linear position of the web in the direction of web travel and the cross web direction is controlled by the non-slip boundary condition between the nip and the web. This nipping action of second cutting and nipping device 102 permits a firm grip on web 1 as [the] each segmented blade 19 cuts web 1 between first cuts 44 (Fig. 4). With the nipping action of the present invention, improved cut-to-cut accuracy with a double-cut folder is improved, as well as print-to-cut accuracy. Stepped cut problems which arise in other double cut designs can be eliminated or reduced.

The paragraph beginning on page 6, line 14 with the following:

Fig. 2 shows the cutting cylinder 10 and anvil cylinder 20 in more detail. Cutting cylinder 10 includes an axle 16 which may be connected to a motor to drive cylinder 10. About axle 16 is a two-part hub 12, preferably metallic, which can be bolted together by bolts as shown. Segmented cutting blades [or elements 18 and] 19 fit between the two parts of hub 12 and may also be fastened by bolts to hub 12.

The paragraph beginning on page 6, line 14 with the following:

A urethane or other nipping material outer layer 14 is placed over hub 12, either before or after the fastening of the two parts of hub 12 together. Layer 14 thus provides a continuous smooth surface extending circumferentially from the blade edges 32. Indented areas 36 (Fig. 3) of segmented [blade] blades 19, which can coincide with grooves in the layer 14, may present themselves directly at the surface of cylinder 10 or be covered by urethane or other material to reduce belt wear. Layer 14 may be pre-bonded to the parts of the hub before assembly. If not coated, the indented area 36 in such a case preferably is dull and meshes with the bottom surface of grooves 115 (Fig. 6) so as not to degrade the belts 6 which run in grooves 115. The belts may run at a different speed than the cylinders.

The paragraph beginning on page 7, line 5 with the following:

Anvil cylinder 12 (or cutting cylinder 10) preferably is indexable circumferentially so that a new anvil surface may be provided once a part of the anvil surface is worn down by the action of the blades [18,] 19. To provide the indexing, an harmonic drive may be provided.

The paragraph beginning on page 7, line 9 with the following:

The center distance between cutting cylinder 10 and anvil cylinder 20 is adjustable to adjust the nipping function, for example to accommodate different web thicknesses. A simple mechanical, pneumatic or hydraulic device (not shown) may be provided for this adjustment, or preferably a force-loaded automatic adjustment may occur.

The paragraph beginning on page 7, line 16 with the following:

Cutting cylinder 3 and anvil cylinder 2 may be similar in construction to cutting cylinder 10 and anvil cylinder 20, except that the nip surfaces of cutting cylinder 3 and anvil cylinder 2 do not need to accommodate any belts and are therefore preferably are continuous in an axial direction. The axial location of the cutting surfaces also alternate, as shown schematically in Fig. 3. Blades 4 have cutting edges 45 which cut first cuts 44 (Fig. 4). [Blade] Blades 19 [and blade 18] (Fig. 3) have cutting surfaces 32 which preferably overlap axially with cutting surfaces 45 as indicated by distance d. Belt 6 passes between cutting surfaces 32 over the area 36.

The paragraph beginning on page 7, line 28 with the following:

Each of the first cuts has a particular length defined by the width of cutting surfaces 45 (Fig. 3). As defined herein, the first and second belts being "at" the first cuts is defined as the belts contacting the web on both sides perpendicular to the cut, but not necessarily over the entire length of the cut.

The paragraph beginning on page 8, line 4 with the following:

"Nipping [elements] surface" as defined herein is a section of the cutting cylinder extending circumferentially with respect to the cutting surfaces of the segmented blades. The nipping [elements form] surface forms a nip with an anvil cylinder so as to nip the web.

IN THE CLAIMS

Claims 1, 3 and 18 as follows:

1. (Once amended) A folder for a web printing press comprising:
 - a first cutting and nipping device for partially cutting a web so as to form first cuts in the web, the first cutting and nipping device nipping the web; and
 - a second cutting and nipping device downstream of the first cutting and nipping device for cutting the web between the first cuts so as to form signatures, the second cutting and nipping device nipping the web.

3. (Once amended) The folder as recited in claim 1 wherein the second cutting and nipping device includes a cutting cylinder having at least one segmented cutting element with cutting [surfaces] edges spaced apart axially and having a nipping [elements] surface extending circumferentially with respect to the cutting [surfaces] edges.

18. (Once amended) A cutting device comprising:
 - a cutting cylinder having at least one segmented blade with axially-spaced cutting [surfaces] edges and a nipping [elements] surface extending circumferentially with respect to the axially-spaced cutting [surfaces] edges; and
 - an anvil cylinder having an outer surface for providing a nip with the nipping [elements and] surface, the anvil cylinder having an anvil surface [for] contacting the segmented blade of the cutting cylinder.

IN THE ABSTRACT

A folder for a web printing press includes a first cutting and nipping device for partially cutting a web so as to form first cuts in the web and for nipping the web. A second cutting and nipping device cuts the web between the first cuts so as to form signatures, the web being nipped at a nip of the second cutting device. Also disclosed is a method for cutting a web which comprises the steps of partially cutting the web so as to form first cuts in the web while web is nipped; and cutting the web between the first cuts [as] of the web while the web is nipped.